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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,796	07/17/2003	William J. Borland	EL0513 US NA	1472
23906	7590	04/14/2005	EXAMINER	
E I DU PONT DE NEMOURS AND COMPANY LEGAL PATENT RECORDS CENTER BARLEY MILL PLAZA 25/1128 4417 LANCASTER PIKE WILMINGTON, DE 19805			LE, DUNG ANH	
			ART UNIT	PAPER NUMBER
			2818	
DATE MAILED: 04/14/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,796

Applicant(s)

BORLAND ET AL.

Examiner

DUNG A. LE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-30 is/are allowed.
- 6) ☐ Claim(s) 1,2,4-9 and 11-14 is/are rejected.
- 7) ☒ Claim(s) 3 and 10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

This office acknowledges of the following items from the Applicant:

Information Disclosure Statement (IDS) filed on 12/8/03 and 11/24/03 and made of record . The references cited on the PTOL 1449 form have been considered.

Specification

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections

Set of claims 1- 14

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application

filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1- 2, 4, 8- 9 and 13- 14 are rejected under 35 USC 102 (e) as being anticipated by Bowles et al. (6,631,551 B1).

Bowles et al. teach a method of making a capacitor, comprising:

providing a bare metallic foil 20; forming a dielectric 30 over the bare metallic foil, wherein forming the dielectric comprises:

forming a dielectric layer 30 (col 6, line 21), over the foil 20; annealing the dielectric layer (col 5, lines 10-20) ; re-oxygenating the dielectric resulting from the annealing (col 5, lines 20-30) ; and

forming a conductive layer 34 over the dielectric 30, wherein the metallic foil 20, the dielectric 30, and the conductive layer 34 form the capacitor 28 (fig. 9).

Regarding claim 2, wherein annealing comprises: annealing at a temperature in the range of about 800-1050 C (col 5, line 26).

Regarding claim 4, wherein annealing results in a dielectric comprising crystalline barium titanate (col 3, lines 10-15) or crystalline barium strontium titanate.

Regarding claim 8, wherein providing a bare metallic foil comprises: providing a bare copper foil 22.

Regarding claim 9, wherein providing a bare metallic foil comprises: providing a foil 22 that has not been treated with organic additives (col 6, line 20).

Regarding claim 13, etching the conductive layer 34 (fig.1).

Regarding claim 14, capacitor 28 formed by the method (fig. 9).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 12 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Bowles et al. in view of the following remark.

Bowles et al. disclose the claimed invention as applied to claim 1 except for providing a dielectric precursor solution comprising barium acetate and at least one of titanium isopropoxide and titanium butoxide and forming a dielectric comprises: forming a doped dielectric.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the abovementioned materials to form the dielectric layer, because they are commonly used to prevent undesirable reactions in the contact region, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the desired application.

Claims 6-7 and 11 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Bowles et al. in view of the following remark.

Regarding claims 6, 7 and 11, Bowles et al. teach the claimed invention as cited in claim 1, except for the capacitor has a capacitance density of at least 0.5 micro Farad/cm² ; re-oxygenating the dielectric comprises: re-oxygenating the dielectric at a temperature in the range of 450-700C and an oxygen partial pressure in the range of 10⁻² to 10⁻⁷ atmospheres and the thickness in the range of about 0.2-2.0 microns as cited in currents claims.

The selection of the abovementioned parameters such as capacitance density, temperature, depth, thickness, etc., would have been obvious and involve routine optimization which has been held to be within the level of ordinary skill in the art. "Normally, it is to be expected that a change in capacitance density, temperature, depth, thickness, etc., or in combination of the parameters would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art ... such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller* 105 USPQ233, 255 (CCPA 1955). See also *In re Waite* 77 USPQ 586 (CCPA 1948); *In re Scherl* 70 USPQ 204 (CCPA 1946); *In re Irmscher* 66 USPQ 314 (CCPA 1945); *In re Norman* 66 USPQ 308 (CCPA 1945); *In re Swenson* 56 USPQ 372 (CCPA 1942); *In re Sola* 25 USPQ 433 (CCPA 1935); *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

Reasons for Indication of Allowable Subject Matter

Claims 3, 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations.

Bowles et al. (U.S. Patent No. 6,631,551 B1) and Background of Invention, taken individually or in combination, do not teach the claimed invention having **(Regarding claim 3)** wherein annealing comprises: annealing in an environment having an oxygen partial pressure of less than about 10^{-8} atmospheres; **(Regarding claim 10)** forming a second dielectric layer on a second side of the foil opposite to the first side.

Set of Claims 15-22 and 23-30 would be allowed.

The following is a statement of reason for the indication of allowable subject matter:

Set of Claims 15-22 are considered allowable since the prior made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Bowles et al. (6,631,551 B1) and Background of Invention, taken individually or in combination, do not teach the claimed invention having the step of annealing at a temperature of greater than about 800C in an environment having an oxygen partial pressure of less than about 10^{-8} atmospheres.

Set of Claims 23- 30 are considered allowable since the prior made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Bowles et al. (6,631,551 B1) and Background of Invention, taken individually or in combination, do not teach the claimed invention having the step of re-oxygenating the dielectric at a temperature in the range of about 450-700 C.

If Applicants are aware of better art than that which has been cited, they are required to call such to attention of the examiner.

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is (571) 272-1784. The examiner can normally be reached on Monday-Tuesday and Thursday 6:00am- 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

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more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DUNG A. LE
Primary Examiner
Art Unit 2818

A handwritten signature in black ink, appearing to read 'DL' or 'DLE', is positioned to the right of the typed name 'DUNG A. LE'.